

Docket No.: PAT-1384

INFLATABLE TOY ARTICLES

Inventor: Yu Zheng

BACKGROUND OF THE INVENTION

5

1. Field of the Invention

The present invention relates to toy apparatus, and in particular, to inflatable toy apparatus that can be thrown as projectiles.

2. Description of the Prior Art

Inflatable toy apparatus have become very popular in recent times because of the ability to deflate the toy apparatus to reduce the size of the apparatus for storage. Many of these toy apparatus have been provided in the form of toy projectiles. In this regard, the fact that inflatable toy apparatus are typically made from a soft inflatable material have contributed to the desirability of providing toy projectiles in the form of an inflatable toy projectile. The softer nature of the inflatable material minimizes potential harm or danger to other people and objects when these projectiles are tossed through the air.

Although there are a number of inflatable projectile toys in the marketplace, some of these inflatable projectile toys do not fly effectively through the air. For example, some of these inflatable projectile toys do not fly very far, or flutter during flight, all of which can be attributed to poor aerodynamics. In addition, there is always a need for projectile toys that offer greater enhancements and play variety.

SUMMARY OF THE DISCLOSURE

It is an object of the present invention to provide inflatable toy apparatus that offer greater enhancements and play variety.

It is another object of the present invention to provide an inflatable projectile toy that has improved aerodynamic properties.

The objectives of the present invention are accomplished by providing inflatable toy apparatus that can be thrown as a projectile. The inflatable toy apparatus have an elongated body that is provided with one or more of a number of other elements and features, including tails, nose pieces, grip pieces, winglets, removable bands, weights, additional inflatable pieces, and fabric covers, among others. Each of these features provides an enhancement in the play variety or

amusement of the apparatus, or function to improve the aerodynamic properties of the apparatus.

BRIEF DESCRIPTION OF THE DRAWINGS

5 FIG. 1 is a perspective view of an inflatable toy apparatus according to one embodiment of the present invention.

FIG. 2 is a cross-sectional view of the portion of the apparatus of FIG. 1 taken along lines 2--2 thereof.

10 FIG. 3 is a perspective view of an inflatable toy apparatus according to another embodiment of the present invention.

FIG. 4 is a cross-sectional view of the portion of the apparatus of FIG. 3 taken along lines 4--4 thereof.

FIG. 5 is a perspective view of an inflatable toy apparatus according to yet another embodiment of the present invention.

15 FIG. 6 is a perspective view of an inflatable toy apparatus according to yet another embodiment of the present invention.

FIG. 7 is a cross-sectional view of the portion of the apparatus of FIG. 6 taken along lines 7--7 thereof.

20 FIG. 8 is a perspective view of an inflatable toy apparatus according to yet another embodiment of the present invention.

FIG. 9 is a cross-sectional view of the portion of the apparatus of FIG. 8 taken along lines 9--9 thereof.

FIGS. 10-15 are perspective views of inflatable toy apparatus according to different embodiments of the present invention.

25 FIG. 16 is a cross-sectional view of the portion of the apparatus of FIG. 15 taken along lines 16--16 thereof.

FIG. 17 is a perspective view of an inflatable toy apparatus according to yet another embodiment of the present invention.

30 FIG. 18 is a cross-sectional view of the portion of the apparatus of FIG. 17 taken along lines 18--18 thereof.

FIGS. 19 and 20 are perspective views of inflatable toy apparatus according to different embodiments of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following detailed description is of the best presently contemplated modes of carrying out the invention. This description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating general principles of embodiments 5 of the invention. The scope of the invention is best defined by the appended claims.

In certain instances, detailed descriptions of well-known devices and mechanisms are omitted so as to not obscure the description of the present invention with unnecessary detail.

The present invention provides inflatable toy apparatus that can be thrown as 10 projectiles. Each inflatable toy apparatus can have an elongated body that is provided with one or more of a number of other elements and features, including tails, nose pieces, grip pieces, winglets, removable bands, weights, additional inflatable pieces, and fabric covers, among others. Each of these features provides an enhancement in the play variety or amusement of the apparatus, or function to 15 improve the aerodynamic properties of the apparatus.

Although several embodiments of inflatable projectile toys are being described in the present invention, the present invention is not limited merely to inflatable projectile toys. The principles of the present invention can be applied to other 20 inflatable toy apparatus that can be used for other amusement purposes and applications.

FIG. 1 illustrates an inflatable toy apparatus 20 according to one non-limiting embodiment of the present invention. The apparatus 20 can be a projectile, and has a generally elongated tubular body 22 that can be made from a soft and flexible or elastic material, such as an elastomeric, plastic, rubber or PVC material, among 25 others. The tubular body 22 has a nozzle 24 through which air or liquid can be introduced to inflate the tubular body 22 to its inflated (i.e., expanded) state as shown in FIG. 1. A plurality of tails 26 are provided in spaced-apart manner radially around the rear end 28 of the tubular body 22. In FIG. 1, three tails 26 are provided. Each tail 26 can be made of the same material as the material of the tubular body 30 22, or from a different material that is slightly harder in nature (e.g., foam or molded plastic) than the material of the tubular body 22. As yet a further alternative, each tail 26 can be made from the same or different materials. In fact, the tails 26 can even be formed in one piece with the tubular body 22, as shown in FIG. 2. A protective nose piece 30 can be secured (e.g., by glue, heat sealing, or welding) to the front

end 32 of the tubular body 22. The nose piece 30 can be made from a different material that is slightly harder in nature (e.g., foam or molded plastic) than the material of the tubular body 22.

In the embodiment of FIGS. 1 and 2, the fact that the nose piece 30 is provided in a material that is slightly harder in nature than the material of the tubular body 22 allows the nose piece 30 to provide both weight and protection to the apparatus 20. First, the nose piece 30 can be provided with a weight that is greater than the weight of the tubular body, the apparatus 20 can enjoy better aerodynamic flight properties. In addition, the nose piece 30 protects the tubular body 22 in that the nose piece 30 can absorb the impact of any contact with another object or the ground when the apparatus 20 is tossed in the air like a projectile. Otherwise, the soft and somewhat elastic or flexible nature of the tubular body 22 means that the tubular body 22 may be punctured or damaged if its front end 32 repeatedly hits or contacts the ground or another object at the end of its flights through the air. In addition, the tails 26 enhance the aerodynamic properties of the apparatus 20 when the apparatus 20 is tossed through the air like a projectile. Thus, the apparatus 20 in FIGS. 1 and 2 provides two distinct benefits in improved aerodynamics and protection.

FIG. 3 illustrates an inflatable toy apparatus 20a according to another non-limiting embodiment of the present invention. The apparatus 20a can be a projectile, and also has a generally elongated and inflatable tubular body 22a that can be made from the same materials as the tubular body 22. A plurality of tails 26a are provided in spaced-apart manner radially around the rear end 28a of the tubular body 22a. In FIG. 3, three tails 26a are provided, and can be made from the same materials as the tails 26. The difference between the tails 26 and 26a is that the tails 26a in FIGS. 3-4 are curved (as best shown in FIG. 4) as opposed to being straight or generally planar (as best shown in FIG. 2 for tails 26), so as to better enhance the aerodynamic properties of the apparatus 20a.

Another difference between the apparatus 20 and 20a is that the apparatus 20a has a plurality of spaced-apart tails 34a provided adjacent the front end 32a of the tubular body 22a. These tails 34a can be either planar or curved, and function to further enhance the aerodynamic properties of the apparatus 20a. In addition, even though FIG. 3 does not illustrate the provision of a nose piece, it is also possible to provide the apparatus 20a with a nose piece similar to nose piece 30 described

above. Thus, the apparatus 20a in FIGS. 3 and 4 provides further enhancements in aerodynamics properties.

FIG. 5 illustrates an inflatable toy apparatus 20b according to another non-limiting embodiment of the present invention. The apparatus 20b is essentially the same as apparatus 20 in FIG. 1, except that the nose piece 30b has a more conical shape, and tail pieces 36b are provided to cover the edges of the tails 26b. The tail pieces 36b can be made from the same material as the nose pieces 30, 30b, and function to provide protection to the tails 26b, as well as providing additional weight to the apparatus 20b, which can be helpful in certain applications.

FIG. 6 illustrates an inflatable toy apparatus 20c according to another non-limiting embodiment of the present invention. The apparatus 20c is essentially the same as apparatus 20 in FIG. 1, with the elongated body 22c and the nose piece 30c being the same as the elongated body 22 and the nose piece 30 of FIG. 1. However, the tails 26 that are spaced apart around the elongated body 22 and provided directly on the outer surface of the elongated body 22 are now substituted by a separate and removable tail assembly 38c that has a hollow cylindrical tube 40c, with a plurality (e.g., four) of tails 26c provided in spaced-apart manner about the tube 40c. The tube 40c and the tails 26c can be made from the same material as the nose pieces 30, 30c, and in one non-limiting embodiment, is made of a plastic material. The tube 40c can be slid over the outer surface of the rear end 28c of the elongated body 22c and secured thereto by friction fit. As shown in FIG. 7, the tube 40c can have a generally O-shaped configuration so as to force the rear end 28c of the elongated body 22c to conform to a similar shape. The tail assembly 38c provides the user with the option of substituting different tail assemblies, thereby increasing the play variety of the apparatus 20c. The tube 40c of the tail assembly 38c can also function to protect the rear end 28c of the elongated body 22c, and to provide additional weight to the apparatus 20c. This additional weight can be helpful in certain circumstances to enable the apparatus 20c to fly greater distances.

FIGS. 8 and 9 illustrate an inflatable toy apparatus 20d according to another non-limiting embodiment of the present invention. The apparatus 20d is essentially the same as apparatus 20 in FIG. 1, with the elongated body 22d and the nose piece 30d being the same as the elongated body 22 and the nose piece 30 of FIG. 1. However, the tails 26 that are spaced apart around the elongated body 22 and provided directly on the outer surface of the elongated body 22 are now substituted

by inflatable tails 26d that are provided in one piece, and with the same material, as the elongated body 22d. As best shown in FIG. 9, the tails 26d share the same hollow interior as the elongated body 22d, and can be inflated and deflated together with the inflation and deflation of the elongated body 22d. The tubular body 22d also 5 has a nozzle 24d through which air or liquid can be introduced to inflate the tubular body 22d and the tails 26d to their inflated (i.e., expanded) state as shown in FIG. 8.

FIG. 10 illustrates an inflatable toy apparatus 20e according to yet another non-limiting embodiment of the present invention. The apparatus 20e is essentially the same as apparatus 20 in FIG. 1, with the elongated body 22e and the tails 26e 10 being the same as the elongated body 22 and the tails 26 of FIG. 1. However, the nose piece 30e in FIG. 10 is now comprised of a plurality of separate nose pieces 42e that are either permanently attached (e.g., by glue, heat seal, and similar known techniques) or removably attached (e.g., by VELCROTM, hooks and similar mechanisms) to the front end 32e of the elongated body 22e. Each of these 15 separate nose pieces 42e can have the same, or a different, shape and size.

FIG. 11 illustrates an inflatable toy apparatus 20f according to yet another non-limiting embodiment of the present invention. The apparatus 20f is essentially the same as apparatus 20 in FIG. 1, with the elongated body 22f and the tails 26f being the same as the elongated body 22 and the tails 26 of FIG. 1. However, the 20 nose piece 30f is provided with a plurality of winglets 44f that are spaced apart about the nose piece 30f, and a grip piece 46f is attached (e.g., by glue, heat sealing or welding) to the underside of a central portion of the elongated body 22f. First, the winglets 44f can be made of the same material as (and in one piece with) the nose piece 30f, and function to further improve the aerodynamic properties of the 25 apparatus 20f. Second, the grip piece 46f can function to provide the user with a convenient surface for gripping by the user's fingers when the user is ready to toss the apparatus 20f as a projectile. Yet another difference between the apparatus 20f and the apparatus 20 is that the elongated body 20f can have a normally curved configuration, as shown in FIG. 11, or can be provided in a material (e.g., certain 30 plastics) that will allow the elongated body 20f to bend during flight (as shown in FIG. 11). In addition, the nozzle 24f can be provided at the rear end 28f of the elongated body 22f.

FIG. 12 illustrates an inflatable toy apparatus 20g according to yet another non-limiting embodiment of the present invention. The apparatus 20g is essentially

the same as apparatus 20f in FIG. 11, with the elongated body 22g, the nose piece 30g and the tails 26g being the same as the elongated body 22f, the nose piece 30f and the tails 26f of FIG. 11. For example, a plurality of winglets 44g are also spaced apart about the nose piece 30g. In the apparatus 20g of FIG. 12, an annular grip 5 piece 46g extends around the circumference of the elongated body 22g, and therefore provides additional surface area for gripping by the user when the user is ready to toss the apparatus 20g as a projectile. The grip piece 46g can be made from any of the materials utilized by the nose piece 30.

The inflatable toy apparatus 20h in FIG. 13 borrows from the principles 10 illustrated in FIGS. 1, 6 and 12. The apparatus 20h has an elongated body 22h and a nose piece 30h that are the same as the elongated body 22 and the the nose piece 30 of FIG. 1. The tail assembly 38h in FIG. 13 can be the same as the tail assembly 38c in FIGS. 6 and 7, having a plurality of spaced apart tails 26h. The annular grip 15 piece 46h can be the same as the annular grip piece 46g in FIG. 12, except that the grip piece 46h is provided with a plurality of winglets 48h that are spaced apart about the grip piece 46h. The winglets 48h can be made of the same material as (and in one piece with) the grip piece 46h, and function to further improve the aerodynamic properties of the apparatus 20h.

FIG. 14 illustrates an inflatable toy apparatus 20i according to yet another 20 non-limiting embodiment of the present invention. The apparatus 20i is essentially the same as apparatus 20d in FIG. 8, with the elongated body 22i, the nose piece 30i and the tails 26i being the same as the elongated body 22d, the nose piece 30d and the tails 26d of FIG. 8. However, in the apparatus 20i of FIG. 14, a plurality of 25 different grip pieces 50i can be attached (e.g., by glue, heat sealing or welding) to any location along the elongated body 22i. These grip pieces 50i can be made from the same material as the grip pieces and nose pieces described hereinabove, and can also function (other than for gripping) as decorative pieces to decorate or improve the appearance of the apparatus 20i.

FIGS. 15 and 16 illustrate an inflatable toy apparatus 20j according to another 30 non-limiting embodiment of the present invention. The apparatus 20j is essentially the same as apparatus 20 in FIG. 1, with the elongated body 22j, the nose piece 30j and the tails 26j being the same as the elongated body 22, the nose piece 30 and the tails 26 of FIG. 1. However, the apparatus 20j further includes an inflatable ring 52j. The inflatable ring 52j has an inflatable ring portion 54j with a hollow interior that

communicates with the hollow interior of the elongated body 22j via a plurality of hollow spokes 56j. The spokes 56j and the ring portion 54j can be provided in one piece, and with the same material, as the elongated body 22j. As best shown in FIG. 16, the spokes 56j and the ring portion 54j share the same hollow interior as the elongated body 22j, and can be inflated and deflated together with the inflation and deflation of the elongated body 22j. The ring 52j functions to distribute the weight of the apparatus 20j more evenly.

FIGS. 17 and 18 illustrate an inflatable toy apparatus 20k according to another non-limiting embodiment of the present invention. The apparatus 20k differs from the other apparatus 20-20j in that the elongated body 22k defines an inner lumen or throughbore 60k that extends through the length of the elongated body 22k. The elongated body 22k has a cylindrical outer wall 62k and a cylindrical inner luminal wall 64k that together define an interior space 66k therebetween. Air or a liquid can be introduced via the nozzle 24k into the interior space 66k to inflate or expand the elongated body 22k. The throughbore 60k is defined by the inner luminal wall 64k. The tails 26k can be the same as the tails 26 in FIG. 1. Instead of the nose piece 30, a circumferential weight piece or band 68k can be slid over the outer surface of the outer wall 62k at the front end 32k of the elongated body 22k to perform the same protective and weighting functions as the nose piece 30. The weight piece 68k can be provided in the form of a solid piece of material, such as plastic, or can itself be an inflatable band that has a hollow interior. Thus, the apparatus 20k can also be used as a toy projectile. The throughbore 60k functions to further enhance the aerodynamic properties of the apparatus 20k.

FIG. 19 illustrates an inflatable toy apparatus 20m according to yet another non-limiting embodiment of the present invention. The apparatus 20m is essentially the same as apparatus 20 in FIG. 1, with the elongated body 22m, the nose piece 30m and the tails 26m being the same as the elongated body 22, the nose piece 30 and the tails 26 of FIG. 1. However, a fabric cover 70m can be provided to cover selected portions of the elongated body 22m. The fabric cover 70m can be attached to the outer surface of the elongated body 22m by stitching, glue and other similar techniques. In addition, one or more attachment devices 72m can be provided on the outer surface of the elongated body 22m. These attachment devices 72m can take the form of a hook piece, a latch piece, a VELCROTM pad, or any other device that allows other objects to be removably attached or coupled to the elongated body

22m. Thus, the attachment devices 72m enhance the play variety and amusement of the apparatus 20m by allowing the user to attach other objects (which can even include another identical elongated body 22m) that can be tossed together with the apparatus 20m.

FIGS. 20 illustrates an inflatable toy apparatus 20n according to yet another non-limiting embodiment of the present invention. The apparatus 20n can be a projectile, and has a generally elongated body 22n that can be made from a soft material that has sufficient rigidity to allow the elongated body 22n to assume its generally elongated configuration. The material can include an elastomeric, plastic, or similar material. The elongated body 22n is preferably not inflatable, but can be tubular in nature. For example, a wire 74n can extend throughout the length of the elongated body 22n to provide a spine or a certain degree of support to the body 22n. In addition, the tubular interior of the elongated body 22n can be filled with granules, beans, or other similar fillings 75n. A plurality of tails 26n are provided in spaced-apart manner radially around the rear end 28n of the tubular body 22n, and the tails 26n can be the same as the tails 26 in FIG. 1. An inflatable piece 76n is mounted about the front end 32n of the elongated body 22n. As one non-limiting example, the inflatable piece 76n can have a similar construction as the elongated body 22k, and have a throughbore similar to throughbore 60k through which the front end 32n of the elongated body 22n can be slid. Air or a liquid can be introduced through a nozzle 24n to inflate or expand the inflatable piece 76n. In addition, a plurality of winglets 78n can be spaced apart about the inflatable piece 76n. The winglets 78n can be made of the same material as (and in one piece with) the inflatable piece 76n, and function to further improve the aerodynamic properties of the apparatus 20f. It is also possible to provide the winglets 78n with a different material, such as any of the materials used for the tails 26-26n described hereinabove.

While the description above refers to particular embodiments of the present invention, it will be understood that many modifications may be made without departing from the spirit thereof. The accompanying claims are intended to cover such modifications as would fall within the true scope and spirit of the present invention.